GrummanWorld

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O'Brien Cautious About Grumman's Outlook

Annual Meeting '88. *Grumman Chairman Jack Bierwirth (L) and President and Chief Executive Officer John O'Brien spoke to about 700 shareholders at the annual meeting on Thursday, April 21. O'Brien succeeds Bierwirth as chairman on August 1, when Bierwirth retires after serving as Grumman chairman for over a decade.*

Bierwirth bids farewell to shareholders at annual meeting, after serving more than a decade as Grumman chairman

Attendees at the April 21 annual shareholders meeting learned that while Grumman's earnings were off in 1987, improved sales and earnings may be in store for 1988.

About 700 people attended the meeting, which was held in the Building 4 hangar in Bethpage. In addition to reviewing the state of the company's business affairs, shareholders bid farewell to Jack Bierwirth. Bierwirth will retire in August after more than a decade as Grumman chairman.

Grumman President and Chief Executive Officer John O'Brien attributed 1987's drop in earnings to fewer aircraft deliveries and settlements of disputes with the Navy and the New York City Metropolitan Transportation Authority.

"It was important to put those contentious issues behind us," O'Brien said. "Our 1988 revenues and earnings will be up as our aircraft production rates return to reasonable levels and we have the first full year of producing postal vehicles at a rate of 95 a day."

O'Brien predicted that the company will be producing EA-6B's, E-2C's, F-14s, "...and perhaps even A-6s," beyond the year 2000. No replacements are yet foreseen for the EA-6B and E-2C, and the F-14D will be test flown soon. "The exact future of the A-6 is still not clear today," O'Brien said. "It *is* clear that some upgraded version will be built at least through 1991." At that time, it may begin to be replaced by the Advanced Tactical Aircraft.

"We competed for that program," he said. "At the end of the competition, we had to decide whether to bid for a price that would require us to absorb many millions of dollars in development costs, with no assurance that we would recover those costs — ever — when the aircraft eventually goes into production. We and our teammate, Northrop, decided that this did not make business sense and so we did not bid the lowest price."

He noted that budget constraints and the technical problems often associated with new weaponry may delay the replacements for both the F-14 and the A-6.

"Long before that time, there will be new aircraft opportunities for us that do not require us to mortgage our future to win," O'Brien commented. Grumman is now one of three preliminary-design contractors for the Air Force's next airborne early warning system.

"Of the three, only Grumman has both the aircraft and radar systems experience required for a total solution," O'Brien said. "That in combination with the fact that we've been working on conformal radar antennas and other key technologies for the past 10 years puts us in a very strong competitive position."

Also in the preliminary stages are two versions of a multimission fighter/attack aircraft, and a multimission electronics-systems aircraft.

The latter would have both AEW and command-and-control capabilities. Grumman is also under contract to modify the A-10 and to define a new electronic countermeasures system for the F-111.

Grumman is developing the Peace Pearl for the People's Republic of China, and the company aims to win a billion dollars of new international business over the next few years.

O'Brien turned his attention to the company's investment in its facilities. "We have tripled our net asset value here on Long Island in aircraft and manufacturing capability," he said. "This investment, and the company-wide program to reduce costs, are showing results."

Grumman won 60 percent of the business it pursued in 1987, beating the defense industry average. "We won the biggest systems integration assignment any company has ever received: the Program Support Contract for NASA's manned Space Station," said O'Brien. "And unlike the other Space Station contracts, ours does not require a lot of work before the contract becomes profitable."

Other recent wins include: an Aerostructures subcontract on the McDonnell Douglas C-17; and Data Systems' contract for a

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Shareholders Salute Jack Bierwirth

Grumman Chairman Jack Bierwirth's last address to shareholders was capped with the Grumman band playing, "For He's A Jolly Good Fellow."

"We will always remember Jack's leadership in times of crisis," said Grumman President and Chief Executive Officer John O'Brien. "When unprecedented levels of inflation created unmanageable cost overruns on the F-14 and drove Grumman right to the steps of the bankruptcy court in the early 1970s, Jack Bierwirth managed to persuade the financial world that we were worth the risk of refinancing.

"In the daily course of business, Jack broadened the company's outlook and patiently led what was a somewhat parochial Long Island company into global markets," he said, "markets that are now central to our plans and Grumman's future.

"The simplest and purest measure of a chief executive's performance is the company's worth to its shareholders during his tenure," O'Brien concluded. "When Jack took over, Grumman's net worth was only $67 million. It has grown every year during his leadership. Today, it stands at $770 million — that's a growth of more than 1,000 percent."

Bierwirth said some difficult times remain for the company, but that he has no doubt Grummanites will be up to the challenge.

"We are emerging into a new, larger, and more technically competent company than we used to be," he said. "It's very important that the new management team has the toughness, the understanding, and the tenacity to go through this period and to carry Grumman to the high ground.

"I'll be looking forward to being a distinguished director next year," he said with a grin. "You know, the directors who sit here in the front row are just directors. But when you retire you somehow become 'distinguished.' It's always been a hope of mine that I would one day be entitled to that adjective."■

'There Will Be Some Tough Times Ahead'

(Continued from page 1)
management system tying together Air Force logistics computers. Grumman moved closer in the race to build the Boost Surveillance and Tracking System (BSTS), a military satellite that will track intercontinental ballistic missiles.

"If we can now win the finals, we will have created a whole new business for Grumman — a business that will be worth many billions of dollars for many years to come.

"The Joint STARS program has been a technical challenge to Grumman, its suppliers, and its customer," said O'Brien. "That challenge is being met, as evidenced by the successful completion of the first Joint STARS test flight on April 1, 1988. It has, however, caused what we estimate to be a nine-month slip from the original program schedule. We are currently assessing the effects of this delay."

In the commercial sector, Grumman scored a success with its first mass-produced vehicle. In 1987, the Montgomery, Pennsylvania, Grumman plant began turning out one Long Life Vehicle every six minutes.

"The aluminum truck body business, which has always been relatively a sideline of Grumman's, is now a significant contributor to our revenues and profits," said O'Brien.

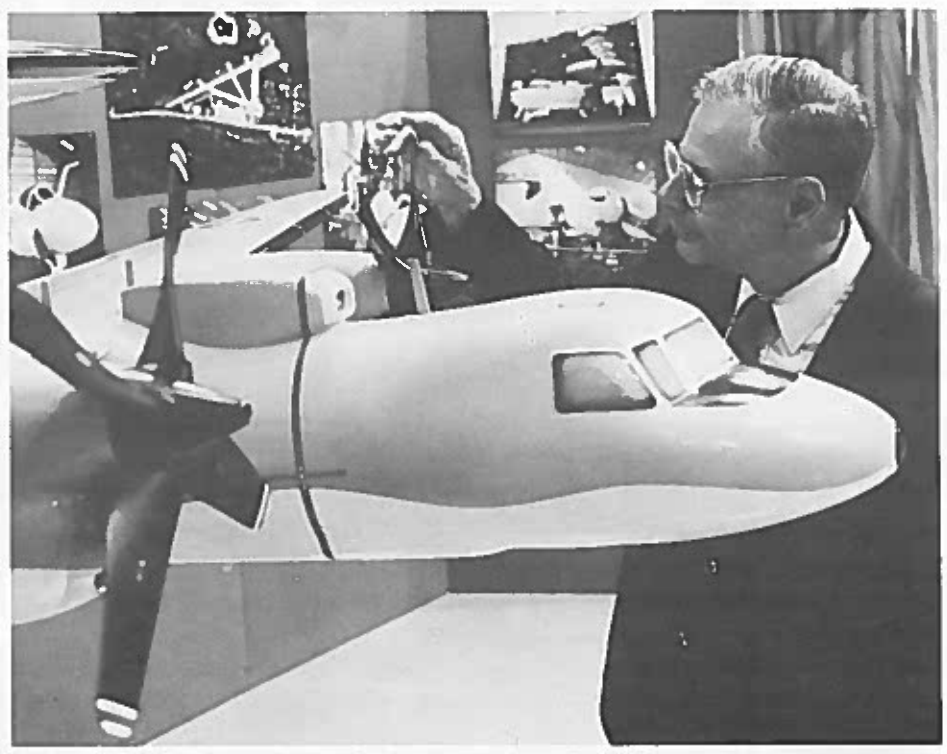
Grumman finished 1987 with another record backlog — $7.9 billion. Two major new programs, Joint STARS and the Intermediate Forward Test Equipment, will renew that backlog.

"I do not mean to suggest that our future is assured," he continued. "We face formidable competitors, many of them larger than Grumman with much deeper pockets than ours. At a time when the overall aerospace business is shrinking, every member of the industry is trying to move into other companies' business positions — including ours. And we have major development programs under fixed-price contracts that carry technical uncertainties and financial risks.

"There will be some tough times ahead. I am confident that we will deal with them, because after 35 years I understand that is the kind of company we are. Our corporate character has always been shaped by our command of complex technology — and it still is."

A new company-wide quality program is going into effect. "Over the past year, I've talked to thousands of Grumman people," he said. "One thing I hear over and over again: 'We Grumman people are not satisfied. We think this company can do things even better, and we want to be part of that process of improvement.'

"I agree with them," he added. "I believe it's my responsibility to create the opportunity to make this company as great as it can be."■



New Opportunities. *Grumman won 60 percent of the business it pursued in 1987, including the Space Station Program Support Contract, a C-17 subcontract, and the Boost Surveillance and Tracking System contract. Grumman President and Chief Executive Officer John O'Brien also predicted the company would continue to build E-2C's, EA-6B's, F-14s and even A-6s through the year 2000. He predicted company profits, depressed in 1987, will rebound in 1988 due to increased deliveries of aircraft and the Postal Service's Long Life Vehicles.*

Shareholders Say 'Aye'

In the business portion of the meeting, shareholders approved an amendment to the corporation's Certificate of Incorporation.

The amendment limits, to the extent permitted by New York Law, the personal liability of board members for damages for breach of duty. A new law on this matter was passed last summer by the New York State legislature.

The amendment allows board directors to perform their duties without undue fear of personal financial exposure — unless actions are in bad faith or knowingly unlawful. The amendment also enables the corporation to obtain reduced insurance premiums.

The shareholders extended, to December 31, 1998, the Restricted Stock Award Plan, and added 700,000 shares of Grumman common stock to it. The plan had been scheduled to end on December 31 of this year, and less than 700,000 shares remained in it for future awards.

Five directors were reelected to three-year terms on the board. They are:

Edward Brooke, former U.S. senator and partner in the Washington, D.C., law firm of O'Connor and Hannan; Orville Freeman, senior partner, Popham Haik, Washington, D.C.; Vice Chairman - Development Dan Huebner; Victor Hao Li, president of the East-West Center, Honolulu, Hawaii; and Ellis Phillips, Jr., president of the Ellis L. Phillips Foundation.

The shareholders also approved the appointment of Arthur Andersen and Company as Grumman's independent certified public accountants.

Dividends Declared

On April 21, the Grumman Corporation board of directors declared a dividend of 70 cents per share on the company's $2.80 preferred stock payable May 13, 1988, to shareholders of record at the close of business on May 3, 1988.

The directors also declared a dividend of 25 cents per share on common stock payable May 20, 1988 to shareholders of record at the close of business on May 10, 1988.

Three Shareholders' Questions Fielded

There were very few questions asked at this year's Grumman Shareholder's Meeting — as a matter of fact, only three. Here they are:

Can you comment on the recent performance of Grumman's products in the Persian Gulf?

O'Brien: According to the reports, E-2C's were the first to discover the Iranians attacking the oil pumping stations. They were warned to back off as they approached some of our ships. It was naval ships that took out the oil rigs. However, A-6s damaged or sunk the gunboats with laser bombs or Harpoon missiles. We're not sure which. For all practical purposes, it was an entire Grumman story.

Bierwirth: We should be very pleased that whenever Grumman equipment has been called on, unfortunately more often that we'd like in the Middle East, it has never failed to operate perfectly. What comes out of Grumman is really quality made.

In reference to recent rumors and the letter to shareholders explaining the share purchase rights plan, can you give us an update on the question of a takeover?

Bierwirth: It is Grumman's policy not to comment on any particular rumors. However, I can say that we have not been in conversation with anyone in reference to a takeover.

The essence of the situation is this: we have won more than the normal share of our competitions. To the knowledgeable people in the various industries in which we operate, we have some very high technology that is of interest to a lot of people.

In some cases, the losing competitors, having money and no programs, have been promoted in the papers to be considered acquirers of Grumman. I find this rather odd and amusing.

There is no question about it. Having won as many programs as we have, we are very busy and there are a lot of things we could do if we had an infinite amount of money. To the outsider, this makes us look like a great buy. They wonder about all the good things that could be done with us.

However, we don't have any challenges that we can't handle. If we did, we would have to look for someone to join us and help handle them. We are also in the fortunate position of having the majority of our stock owned by people who have an interest in the company beyond just the casual investment. I don't think our shareholders are interested in just making a fast dollar from one day to the next. They have a much stronger interest in what happens to Grumman.

The announcement of an increased presence in Houston in connection with NASA work has created a great deal of political and media interest regarding Grumman's commitment to Long Island. Can you comment on this?

O'Brien: This is another case of balancing our distribution of work to protect our total interest. We have had a factory in Houston employing several hundred people for many years.

Grumman has an option to develop some properties in Texas that we had hoped to use for the Space Station. However, we now see an opportunity to do some production work of new airplanes there — added inventory.

We continually move work around to balance our total cost per hour and make Grumman's operations more competitive. We are simply taking an opportunity offered to us to create production floor space at very reasonable costs. We have a skilled cadre of people there and the potential to increase that work force at very reasonable rates. This allows us to compete for other business.

We will also gain political advantages by distributing our work base. While we may have gotten some local congressmen a little concerned, we have gotten the Texas delegation very interested in us.

We cannot build a complete airplane at competitive prices on Long Island given the operating costs here. This is well known among our people and has been explained to the newspapers and the world. We are not moving off Long Island. I have said that now about 4,392 times since I took office and I will probably say it another 8,000 times.

First F-14A(PLUS) Delivered To Navy Training Squadron

NAS OCEANA, Virginia, April 11 — At ceremonies here today, Navy training squadron VF-101 accepted its first F-14A(PLUS).

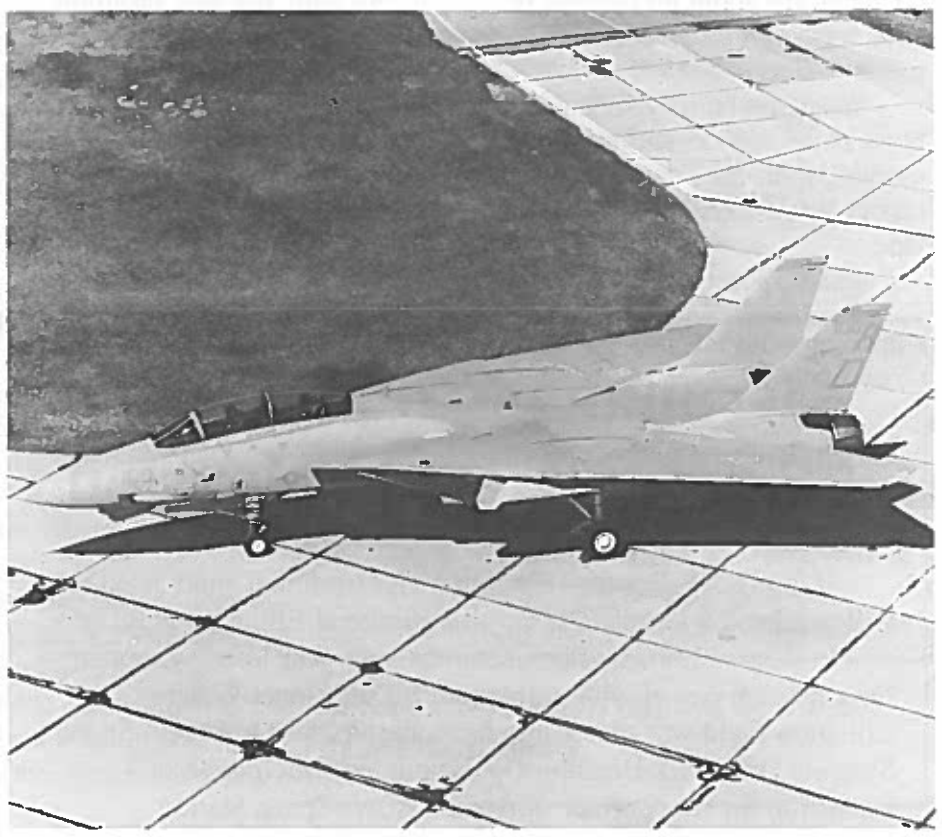
VF-101 will eventually have six F-14A(PLUS) Tomcats to train the aircrews and maintenance personnel so that they will be ready to deploy with these new, more powerful and fuel-efficient Tomcats in 1989. The fleet squadrons will begin receiving their F-14A(PLUS) aircraft in the fall.

Grumman Aircraft Systems President Renso Caporali joined the commander of the Atlantic Fleet, Adm. Richard Dunleavy, and other Navy officials for the acceptance ceremonies.

This is the fifth production F-14A(PLUS) that Grumman has delivered. The first two are involved in flight test programs at the Navy Flight Test Center in Patuxent River, Maryland; the other two are at Pt. Mugu, California.

The F-14A(PLUS) incorporates new General Electric F110-GE-400 engines and is an interim step before the introduction of the advanced F-14D. The "D" version will have the same engines, but will also have all new, digital avionics and improved radar systems.

Grumman will deliver the first F-14D in 1990. Until then, Grumman will produce 38 new F-14A(PLUS) aircraft for the Navy and remanufacture 32 existing Tomcats into the F-14A(PLUS) configuration.■



Rolling Them Out. *Grumman gave the Navy's east coast training squadron its first F-14A(PLUS) Tomcat. Operational squadrons will begin receiving theirs later this year. (Photo by Gerry Costello)*

Data Systems Makes The ATACC Final Four

Data Systems has made the cut in the competition to build the Advanced Tactical Air Command Central (ATACC) for the U.S. Marine Corps.

Based on proposals submitted last June, the pool of 10 original bidding contractors was reduced to four: Grumman, General Electric, LTV and Norden.

ATACC is the mobile command and control system used to plan and direct coordinated air operations in support of the ground units of a joint task force.

In late May or early June, the competitors will be asked to submit their best and final offers. The contract will be awarded in June.

The first phase of the contract calls for a prototype. If that is successful, the Marine Corps plans to build at least six ATACC systems.■

Bond Paper Recycling Program Begins May 9 At Three Bethpage Sites

Grumman kicks off its Bond Paper Recycling Program in corporate headquarters, Buildings 30 and 35 on Monday, May 9.

All Grummanites in these buildings will receive a special green plastic folder. They are asked to put bond paper — originally destined for the garbage pail — into this legal-size folder. This folder should be placed on top of their garbage pails at the end of the work day. Every night, Facilities people will empty the folder into special bins which will be picked up by a recycling firm.

When you work in an office area, there are plenty of opportunities to be a recycler. Just look at your waste basket. Chances are about 40 percent of your trash can be placed in the green folder.

What can be recycled? All bond paper, office stationery, copier paper, note paper, personal computer paper, and calculator tape.

One important exception: *No classified material can be placed in the folder.* That should be discarded in burn barrels.

Remember that paper clips, staples and rubber bands have to be removed before placing the paper in the green folder.

Of course, there are a number of types of paper that can't be recycled in this program. They include: colored paper, newspapers, magazines, cardboard, coated paper, report covers, carbon paper, envelopes, green computer printout paper, and paper fasteners. For instance, you can't place this issue of *Grumman World* in the green folder, because it is printed on coated paper just like magazines.

As with any new program, the kinks will have to be ironed out. Residents of the three Bethpage buildings will be asked for their suggestions before the Grumman Bond Paper Recycling Program is expanded to other sites.■

A Colorful Bunch. *All of the winning photographs in the Public Affairs photo contest are in color. We can't publish all the winning entries because transferring them to black and white didn't do them justice. Here are two that could be published: 'Basket of Dogs' (above) by Jim Smith, a senior logistics analyst for Aircraft Systems in Bethpage; and 'The Old and The New' — St. Paul's Chapel in downtown Manhattan (L) — by Eddie Albert, a senior electrical assembler for Electronics Systems in Great River.*

Grumman To Develop Ellington Field In Houston

HOUSTON, Texas — On April 19, Grumman announced it will go ahead with plans to develop its site at Ellington Field here.

In August 1987, Grumman signed a 40-year lease agreement for a 66-acre parcel with options for an additional 79 acres. Ellington Field was to become headquarters for Grumman Space Systems Division's Houston Operations, in anticipation of expansion for subcontract work on NASA's Space Station program.

Grumman lost Work Package Two last fall. The lease agreement allowed Grumman to cancel if it lost the contract, but the company decided to proceed. Development will be on a smaller scale than originally planned, but with broader scope. It will be devoted to future business corporation-wide — not just space projects.

"Grumman sees many future opportunities for growth, and we intend to make Houston part of that," said Grumman Vice President—Business Operations Jake Bussolini. "Although our development plans have been altered and much of our growth is projected on future new business, we intend to proceed with the Ellington Field project as part of our business plan."

No people or work will be moved from Long Island. "The core of our operations will continue to be in New York, our home for nearly 60 years," said Bussolini. "But investing in Houston insures our future in New York by reducing our overall costs."

Ground will be broken next year for a new office building on the site, initially to house Grummanites who now work in the company's Clear Lake building. They include Space Systems people working on a Boeing subcontract for Work Package One, the Space Station crew quarters, and on a TRW subcontract for the Orbiting Maneuverable Vehicle. There also are people from other Grumman divisions who will move from Clear Lake to the new office.

Thirteen Camera Bugs Win Photo Competition

Thirteen Grummanites won the annual Public Affairs photo contest. Their award-winning photos will be on display near the corporate headquarters cafeteria later this Spring. The winners are:

Eddie Albert, senior electrical assembler, Electronics Systems, Great River: "The Old and The New," St. Paul's Chapel in downtown Manhattan.

John Bergquist, support engineer, Aircraft Systems, Calverton: "Fisherman at Sunset" in Maine.

Grace Chasse, senior document processor, Aircraft Systems, Bethpage: "Butterfly on Flower" at Westbury Gardens.

Chip D'Andrea, teletype operator, Corporate Services, Bethpage: "Illuminations at EPCOT," fireworks in Florida.

Tony Germano, traffic manager for NAVPRO in Bethpage: "Family Affair," a group of deer at Lion Country Safari in West Palm Beach, Florida.

David Greer, CAD Operator, Grumman Emergency Products, Roanoke, Virginia: "Weed in the Lake" at Beaver Dam Lake, Virginia.

Gerry Kraus, senior subcontract administrator, Corporate Services, Woodbury: "Concentration," an old man in Central Park.

Barbara Maniuszko, business analyst, Corporate Services, Bethpage: "Proud to Be," a peacock at the Phoenix Zoo in Arizona.

T. J. Marinus, manager of Supply Operations, Aircraft Systems, Melville: "House of the Sun" at Halekala Volcano in Maui, Hawaii.

Paul McCrosson, flight test engineer, Aircraft Systems, Edwards Air Force Base, California: "Lady in Archway" in San Juan, Puerto Rico.

Ray Meenan, senior engineer, Aircraft Systems, Bethpage: "Shrimp on Anemone" at the island of Bonaire.

Jim Smith, senior logistics analyst, Aircraft Systems, Bethpage: "Basket of Dogs," Chinese Shar-Pei dogs in Jim's backyard.

Barbara Kovacs Weizenecker, budget analyst, Aircraft Systems, Bethpage: "Abbey," the family cat.■

Alexandrovich: Space May Show Us How To Do Things Better On Earth

Alex Alexandrovich, president of the Space Systems Division, has no doubt whatsoever that people will someday travel to other planets — even set up colonies.

"When will it happen? I'd say maybe 30 to 40 years from now," says Alexandrovich. "I sure wish I could be around to see it.

"It's being a bit philosophic, but look at the past," says Alexandrovich, whose silver hair and preference for bow ties lend a professorial air. "How long have we had commercial aviation? When did television come about? The horse-and-buggy days weren't that far back.

"We've moved very rapidly, and nobody has ever predicted with any degree of certainty what will happen in 20 or 30 years," he says.

When Alexandrovich joined Grumman in 1965, the company was laboring fast and furious on the development of the Lunar Module. Now, his division has some pretty exciting work for the manned Space Station, scheduled for completion in 1996. The projects include robots that could act as an in-orbit hardhat crew, Space Station crew quarters, and restraints to keep people and objects from floating out of control in zero gravity.

1987 ended on a sour note, when Grumman was on the losing team for the largest of the four Space Station work package contracts. Winning that would have meant 1,000 new jobs for the division, and $1 billion in future revenues.

The division's role on Work Package One, the crew quarters, is about one-tenth that size. But Alexandrovich is upbeat about the division's prospects.

For one thing, he points out that the Space Station isn't a closed matter yet. Grumman hopes

'We've moved very rapidly, and nobody has ever predicted with any degree of certainty what will happen in 20 or 30 years.'

to win bids on two Space Station thermal systems: a thermal bus, or piping system, worth about $50 million; and a heat-expelling radiator, worth around $20 million.

"The folks at NASA have been following this technology for years, giving all the competitors seed money, independent of the work packages," says Alexandrovich. "Grumman is now building prototypes to be evaluated by Johnson Space Center. I'm optimistic; I have a lot of confidence in our designs."

Another group of Grummanites is working on phase B of the Flight Telerobotic Servicer program. This remote controlled robot will be able to build parts of the Space Station in orbit, and later, service unmanned research vehicles that fly in formation with the station.

It's a high-stakes race: the next and final phase will be worth probably $300 million. Since the project began, NASA has moved the tentative flight date up — to July 1991 from 1994.

"We're working very hard to come up with a concept that can be flown by then, and also be useful," says Alexandrovich. "We're very, very busy. It's exciting, and of course we hope we'll be the winner. We're up against Martin Marietta. They'll be tough to beat."

Alexandrovich ticks off the many uses of telerobotics besides space. "Any risky task is appropriate: chemical work, construction sites, hazardous wastes, the nuclear industry," he says. "Who knows? This could be the beginning of a new business for Grumman."

Although the Space Systems Division is best known for its civil space contracts, NASA isn't its biggest customer. Not by a long shot: 90 percent of the division's work is for the military.

Much of that is oriented toward the Strategic Defense Initiative (SDI). Popularly known as "Star Wars," SDI has been a subject of intense debate.

"People just don't seem to understand that when SDI was formed, a lot of it was already being developed," says Alexandrovich. "SDI gathered all these programs under one umbrella and focused them toward a missile defense."

Alexandrovich believes Grumman's programs, particularly the Boost Surveillance and Tracking System, will survive the elections ahead. BSTS is a mosaic starer system for an infrared satellite.

'I hope space doesn't become a battleground.'

Likewise, the division's work on neutral particle beams could continue unscathed, because these beams discern targets from decoys — even though if given enough energy, particle beams are capable of destroying targets.

"I hope space doesn't become a battleground," says Alexandrovich. "Certainly, if both sides reduce their missile arsenals to zero, there will be no need for SDI."

He points out that U.S./Soviet peace talks have often touched on the need for both countries to verify treaty compliance. That would require hardware — such as BSTS. "Peace or war, you really ought to know what the other side is doing," he notes.

The BSTS focal plane obtains information in all three dimensions — X, Y, and Z. "All our competitors work in only two," says Alexandrovich. "We are able to do certain computations close to the focal plane by working in that third dimension. We feel we have a better mousetrap."

Grumman also has been developing a space-based radar system for the past dozen years. The company is now working on a concept exploration, as are its competitors, that will culminate in the selection of a contractor to build the operational system.

'Certainly, if both sides reduce their missile arsenals to zero, there will be no need for SDI.'

"Considering the state of DOD budgets today, I don't expect the government to make any awards until 1991," says Alexandrovich. Under SDI auspices, Grumman is also building a structural demonstrator that it expects to flight test aboard the Space Shuttle in the early 1990s.

"As with our infrared work, I am very bullish on our prospects," he says.

Twenty years ago, the space program was partly responsible for advances in computers and telecommunications. Alexandrovich believes that the strategic defense initiative will eventually benefit many technical specialties.

"Take, for instance, battle management," he explains. "On any one missile, there are —

What's In The Future? *Alex Alexandrovich notes that 'nobody has ever predicted with certainty what will happen in 20 to 30 years.'*

conservatively — 10 nuclear weapons and 100 decoys. For one launched missile, there are 110 vehicles in space. Now launch 2,000 of those simultaneously and multiply that by 110. You have 220,000 devices up there to be detected, tracked, and targeted.

"SDI is going to create some architectures, algorithms, hardware, and software that will have no match in the world," he says.

With virtually 100 percent of the division's funding coming from the Federal purse, Alexandrovich closely follows Capitol Hill. The DOD budget has already been pruned for this year; Grumman is now eyeing NASA's $11.5 billion budget proposal. It is 29 percent higher than fiscal year 1988, and Alexandrovich says NASA is in for a tough time.

"The proposed budget includes getting the Space Shuttle back in orbit, the Space Station, and $100 million to start the Pathfinder program, which will plan future lunar and Mars exploration," he notes. "I think with the pressures now on the budget, those programs will be slowed down. If NASA were asked about its priorities, the Space Station would be number one.

"Today you hear the words 'zero sum,' which means if you want to add something, take something else out. Problem is, whatever you take

'Space exploration cannot be done by the U.S. alone.'

out is going to hurt."

Alexandrovich calls for greater international cooperation on the Space Station and in getting programs such as Pathfinder started. Pathfinder will require years of research and concept studies before any actual mission planning.

"I believe the time has come where space exploration cannot be done by the U.S. alone," says Alexandrovich. "Our future adventures to the Moon and Mars will be very expensive — and there are enormous problems to solve on earth."

In the 1960s, only the Soviet Union had space know-how rivalling the U.S. That's not true anymore. A team of Western European countries, Japan, and China now are working on their own ambitious agendas.

"Perhaps America could take a leadership role, such as being a managing partner," he says. "No one country can do it alone, without sacrificing something vital.

"It's always a question of how much effort, talent, and money you apply to a goal," says Alexandrovich. "The payoff will be immeasurable — when people finally get to those other planets, they will learn many new things — things that nobody has ever even dreamed of yet.

"Hopefully, they will learn how to do things better on the ground."■

Where Every Second Counts. *These firefighters are testing a Grumman AerialCat. The line of pumpers is now available with computerized outriggers — the legs supporting the truck.*

AerialCats Now Equipped With Automatic Outriggers

Grumman Emergency Products has introduced a computerized outrigger system for its aerial pumpers.

Outriggers are the legs that support the truck when the aerial is lifted. Until now, firefighters have had to adjust them manually. With the Grumman system, it's automatic.

The leg platforms contain sensors that level the truck according to the pavement or terrain. The control device is a microcomputer installed under the driver's seat for easy servicing.

"The system enables faster setup at the scene of the emergency," says Jack Bailey, product sales manager. "The firefighter flips a switch and the truck is levelled in 30 seconds. The emergency crew can more quickly start fighting the fire and saving lives.

"The computerized outrigger system is also a safety measure," adds Bailey. "In an emergency, something may call the firefighter's attention away from levelling the outriggers properly — whether it's smoke, cold, or the dark. This system makes sure that doesn't happen."

The new product was unveiled at the recent Fire Department Instructors' Conference in Cincinnati, Ohio. It will be built by the crew in Vinton, Virginia, where all Grumman aerial platforms are manufactured.

Bailey says the computerized outrigger system was well received at the show. "Anything that can help firefighters do their job better and safer has a place," says Bailey, "and this is the only system of its kind on the market."■

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Three Get New Appointments

On Thursday, April 21, the Grumman Corporation board of directors approved the following appointments:

In Data Systems, **Philip Gandolfo** was named assistant controller. He reports to Joe DiGiacomo, vice president and controller.

In Space Systems, **Jerome Goldmacher** was named vice president-Operations. He reports to President Alex Alexandrovich.

In Technical Services, **Jarvis Olson Jr.** was named program vice president-Shuttle Processing Contract.■

Retiree Obituaries

Helen H. Farrell of 235 S. Jefferson St., Beverly Hills, Florida, died April 4,1988. She retired in 1970.

Thomas J. Carroll of 10 Bartlett Commons, Shirley, N.Y., died April 9, 1988. He retired in 1987.

Henry A. Matthews of 399 County Line Rd., Amityville, N.Y., died April 6, 1988. He retired in 1964.

Doris J. Turner of 264 West Court, Amityville, N.Y., died Jan. 20, 1988. She retired in 1984.

Eileen K. Mead of 38B Turf Mobile Ct., Clifton Park, N.Y., died April 4, 1988. She retired in 1985.

1,000 New Members Joined PAC In 1987

BETHPAGE, N.Y., April 21 — At the 1988 Grumman Political Action Committee (PAC) annual meeting, Suffolk County Executive Pat Halpin promised that the county would do all it could to help the company prosper here.

PAC chairman Dave Walsh opened the meeting by thanking Grumman Chairman Jack Bierwirth, who retires in August. Since joining Grumman, Bierwirth has emphasized the need for a vocal Grumman community.

Walsh pointed out that the Grumman PAC now has the highest employee participation percentage of any PAC in the nation. It has 4,637 current members, over 1,000 of them joining in 1987. With over 9,000 potential members in the company, "we will make an extra effort to encourage them to become members," Walsh said.

Grumman President and Chief Executive John O'Brien then introduced Suffolk's executive. "Grummanites are special," Halpin said. "When I ask Grumman people for help they don't ask, 'How much time will it take?' They ask, 'What needs to be done?'

"Let's face it: Suffolk County needs Grumman, and Grumman needs Suffolk County. Our pasts and our futures are intertwined," Halpin said.

"We must work together," he said, because Long Island's economic future is not as bright as its past. "Today and perhaps for the next decade we expect to see defense spending head to a downward curve."

"We will do everything we can to ensure that Grumman continues to grow right here on Long Island," he said, pointing to a number of county efforts to bring down the cost of housing and energy, hold the line on taxes and improve the environment. "We in Suffolk hear Grumman talking."

Bierwirth recalled how Grummanites' political voice has been raised over the last decade. "When I came to Grumman," he said, "our political perspective went something like this: We went down to Washington as a company and occasionally talked to an officer in the United States Navy who was responsible for an airplane program. And that was about it."

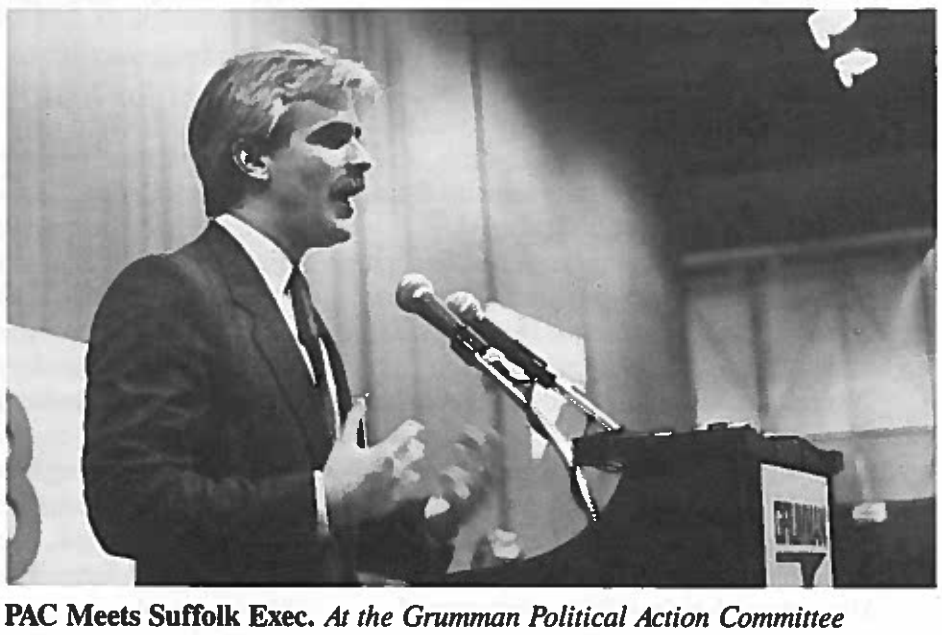
Facing bankruptcy in the early '70s, the company was forced to become politically aware. Once over that obstacle, it became politically mature, Bierwirth explained.

Since elected officials came from a wide range of backgrounds, "We had to make an effort to explain our business to people who were going to decide whether we were in business or not. We had to do it intelligently and we had to be in a position to contribute reasonably to their efforts to get reelected," Bierwirth added.

"You don't do that at moments of crisis. You do it day in and day out, year in and year out, and then you begin to have an effect.

"We have to think of ourselves as a company whose roots are on Long Island, but is basically an East Coast company," he told the audience. "We have a lot of issues we're concerned about. We should not be shy in expressing them."

PAC members elected Vincent Milano and Jim Joyce to the PAC posts of vice chairman and assistant treasurer, respectively. Jean Esquerre, who recently retired from Grumman, was cited for his service on the PAC steering committee during the first 10 years of its activity.■



PAC Meets Suffolk Exec. *At the Grumman Political Action Committee meeting, Suffolk County Executive Pat Halpin commended Grummanites on their civic awareness. (Photo by Bob Settles)*

Beltrami & Clark Take Stock In Grumman

They are named Grumman Project Sterling suggesters of the year at annual awards dinner

Working smarter: That's what Renso Caporali, Aircraft Systems President, commended the group of honorees for at the 22nd annual Project Sterling Awards Dinner, held April 6 at the Milleridge Cottage in Jericho, Long Island.

"The government's budget is going to get smaller over the next few years, but its needs will most likely stay the same," said Caporali. "The pressure is going to be on us to do more for less."

Project Sterling suggestions submitted in 1987 saved the company $15,289,614. That includes a customer savings of $5,707,435. Suggesters of the Year and Super Savers of 1987 were honored at the dinner.

Joseph Beltrami and Robert Clark were the top suggesters of 1987. Their idea was to use a floor cleaner to remove contaminants from broken-down E-2C air conditioning units.

"These units keep the black boxes cool aboard the E-2C. When they are not properly maintained in the fleet, the compressors break down," says Beltrami, a foreman in the Environmental Test Department in Building 31. "When this happens, the compressor explodes internally and spreads contaminants throughout the entire unit."

Grumman has a contract with the Navy to repair the air conditioners. Before Clark and Beltrami came to the rescue, there was no solution for removing the contaminants. The units had to be replaced.

"We tried everything to get the air conditioners clean: alcohol, Freon, a mild acid — nothing worked," says Clark, who retired on March 25 as a technician in Building 31.

"We had been washing the shells of the units with the same cleaner the Maintenance Department was using to strip the wax off the floors," says Beltrami. "The units were coming out spotless, so we decided to try the solution on the inside parts, and it worked."

Their suggestion saved the company $248,374 in the first year alone. When their suggestion was approved, Clark and Beltrami split an award of 310 shares of Grumman stock. For being top suggesters of 1987, they won an additional 50 shares each.

Joe King also received 50 shares of stock for taking the second place award. He suggested a cheaper way to make the thrust reverser door skins for the G-IV and F-100 aircraft.

A Cool Idea. *Joseph Beltrami (L) and Robert Clark, of the Environmental Test Department in Building 31, were named Suggesters of the Year at the Project Sterling Awards Dinner held on April 6. They suggested a new way to eliminate contamination from broken-down E-2C air conditioning units. (Photo by Bob Settles)*

An outside vendor was using an expensive process, called hot forming, to mold the skins into shape. King, an installer for Aircraft Systems, pointed out that the titanium doors did not have to be heated in order to be molded.

He suggested replacing the hot form procedure with an in-house roll form method. The suggestion saved the company $159,216 dollars in the first year. King received 342 shares of Grumman stock for making the suggestion.

Brian Pratt, an associate engineer, was the third place winner. He created software for the EA-6B maintenance diagnostic program. His suggestion reduced the work of encoding and processing messages which resulted in a substantial savings in man-hours.

Pratt's suggestion saved the company $294,401 dollars in its first year. He pocketed 222 shares of stock for making the suggestion and an additional 30 shares for being a top winner.

Twenty-one other Grummanites received stock awards: 20 shares—Ed Stone, Michael Horn, Ronald Odato and Thomas Henry, Glenn Walton, Patricia Valentine, John Maher, and Thomas Mannle and Janio Sanchez; and 10 shares—Bernard Mallow and Mary Ellen Jaworski, Frank Vasquez and Casimer Kinkel, Robert Mierzejewski and William Paul, Joseph Grosso, Thomas Gross and Loyd Thompson, Salvatore Torregrossa, and Salvatore Pavese and William Brinkerhoff.

"Suggester of the Year awards are based on the suggester's effort in developing the idea, plus the benefits to the company generated by the solution," says Paul DiBenedetto, manager of Motivational Programs. "Super Saver awards are presented solely for the suggestion's cost savings to the company."

In 1987 there were 1,347 Project Sterling suggestions approved. Forty were selected as the top Super Savers. Ten shares of Grumman stock were given to each of the winners. If more than one person submitted the suggestion, the award was shared.

The Super Savers were: Joseph Kincaid and George Greenhalgh; Dorothy Jones and James Canova; Hilden Rye; Joseph Ciechanowski; Werner Dauber; Armando Crecco; Craig Downey and Jeffrey Ake; Melvin Schreiber and Louis Royce; Alan Lipton; Warren Bishop; Michael Micene; Stanley Teich; Fred Henn and Ron Carter; Daniel McNamara, John Silvis, Frank Muraca, Robert Mayrose, and Marianne Hansen; Edward Wick and Patricia Clark; Tara Filete; Richard Sorelle; Frank Krieger; Fred Donnelly; Roger Kaplan and Anthony Cioffi; Warren Bishop; Rita Farber, Tony Simone and Dan Nieves; Theodore Frivold; Bonnie Diamond; Judith Scanapico; Patricia Rodriguez and Gerard Curran; Steven Stacel; John Cattonar Jr.; Barbara Moore; Antanas Valys; David Hoitsma; Vincent San Filippo and Norman Facey; John Pizzuti; David Edwards and William Schaal; Charles Weber; James Hartman; Jacqueline Todaro; Patricia Cummings; Edward Hornbuckle and James Garraffo; Jerome Morris and Charles Schmitt.■

Houston Brings Home The Trophy

Aircraft Systems' Houston Operations won the Participation Trophy for their contributions to the Project Sterling Program in 1987.

The award is based on the number of suggestions in relation to the group's size. In Houston, 453 Grummanites submitted 454 suggestions.

Their ideas saved the company $233,200 dollars last year. They received: 16 stock awards valued at $9,085; 67 cash awards, valued at $4,750; and non-monetary gifts.

"People are our biggest asset," says Jim Reinhartsen, director of Houston Operations. "We need their suggestions and any opportunity to reward Grummanites for contributing to the quality of the company should not be missed."

In addition to Motivational Programs' promotional campaign for suggestions, Houston ran a few of their own.

"In several locations we placed large thermometers ranging from 25 to 150, to display the number of suggestions submitted each week," says Hank James, manager of Skills and Resources.

In November, everyone who made a suggestion and had it approved was given a Houston key chain and a screwdriver set. The person with the most suggestions received a Thanksgiving basket with all the trimmings, including a turkey.

"We plan on making Houston the participation trophy's permanent home," says Reinhartsen.

R. T. Adams

D. S. Aitkin

H. W. Alston

S. J. Azzarello

G. C. Backer

J. F. Bagorazzi

H. L. Bailey

S. Boles

G. G. Boyd

S. W. Bryant

H. P. Buck

C. Bumble Jr.

C. R. Burt

W. P. Carvino

L. A. Castles

E. J. Chomeok

A. L. Cipriani

D. Commisso

R. M. Coughlin

A. E. Dague

G. D. Daly

J. M. Dante

R. A. David

F. J. DeLucia

T. W. DeMund

F. Dean

N. R. DelPiano

B. Diccianni

T. F. Doherty

J. J. Doran

J. E. Dugger

W. F. Dwyer

A. J. Ettlinger

R. H. Fagan

M. J. Ferguson

E. A. Finck

R. C. Finger

L. J. Fink

D. A. Frasier

K. Frederick

W. F. Gargiulo

V. M. Geer

J. Gillis

J. F. Glaser Jr.

R. J. Gundersen

R. Hagen

M. M. Hansen

A. E. Harris III

Service Milestones

40

Edward R. Brala, Bethpage, Aircraft Systems
Anthony A. Fuori, Bethpage, Aircraft Systems
Edward Jasuta, Bethpage, Aircraft Systems
Werner J. Langhauser, Bethpage, Aircraft Systems
John E. Meany, Stuart, Aircraft Systems
John Pizzuti, Bethpage, Aircraft Systems
Alex Polozoff, Bethpage, Aircraft Systems
Charles E. Scheffer, Calverton, Aircraft Systems
John R. VanSant Jr., Bethpage, Aircraft Systems

35

Thomas J. Kelly, Bethpage, Data Systems
Robert J. Kopack, Bethpage, Aircraft Systems
Jeanne A. Olsen, Bethpage, Grumman Corporation
Gilbert T. Raynor, Bethpage, Aircraft Systems

30

George F. Collins, Bethpage, Corporate Services
Norma I. Conklin, Bethpage, Grumman Corporation
Helma T. Connor, Great River, Electronics Systems
John G. DeVitt, Calverton, Aircraft Systems
Frank R. Elliot, Bethpage, Space Systems
William J. Evans, Dayton, Corporate Services
William W. Kennard Jr., Bethpage, Aircraft Systems
Charles F. Koop, Bethpage, Aircraft Systems
James V. LaSala, Melville, Aircraft Systems
Robert Lertora, Bethpage, Aircraft Systems
Paul J. Marcone, Melville, Aircraft Systems
Anthony Minutella, Bethpage, Aircraft Systems
Peter D. Mirabella, Bethpage, Aircraft Systems
George E. Morris, Calverton, Aircraft Systems
Shirley M. Pathos, Holtsville, Data Systems
Daniel C. Postupack, Melbourne, Melbourne Systems
Charles H. Rodenburg, Calverton, Aircraft Systems
Kenneth H. Speiser, Great River, Electronics Systems

25

Richard T. Adams, Calverton, Aircraft Systems
David S. Aitken Jr., Bethpage, Aircraft Systems
Harold W. Alston, Bethpage, Aircraft Systems
Santo J. Azzarello, Hicksville, Aircraft Systems
George C. Backer, Melville, Aircraft Systems
John F. Bagorazzi, Melville, Aircraft Systems
Hardy L. Bailey, Hicksville, Corporate Services
Sol Boles, Melville, Aircraft Systems
George G. Boyd, Calverton, Aircraft Systems
Patricia Brannan, Bethpage, Data Systems
Samuel W. Bryant, Bethpage, Aircraft Systems
Harold P. Buck, Bethpage, Aircraft Systems
Charles Bumble Jr., Calverton, Aircraft Systems
Charles R. Burt, Marathon, Allied
William P. Carvino, Bethpage, Corporate Services
Lawrence A. Castles, Great River, Corporate Services
Frank E. Catalano, Bethpage, Aircraft Systems

Ernest J. Chombok, Hicksville, Corporate Services
Anthony L. Cipriani, Bethpage, Aircraft Systems
Dominick Commisso, Calverton, Aircraft Systems
Robert M. Coughlin, Melville, Aircraft Systems
Alfred E. Dague, Bethpage, Aircraft Systems
George D. Daly, Calverton, Aircraft Systems
James M. Dante, Bethpage, Aircraft Systems
Radcliffe A. David, Melville, Aircraft Systems
Fred J. DeLucia, Bethpage, Aircraft Systems
Theodore W. DeMund, Melville, Aircraft Systems
Florine Dean, Bethpage, Corporate Services
Nicholas R. DelPiano, Calverton, Corporate Services
Biaso Diccianni, Melville, Aircraft Systems
Thomas F. Doherty, Bethpage, Aircraft Systems
James J. Doran, Bethpage, Aircraft Systems
Leslie Dowling, Bethpage, Aircraft Systems
James E. Dugger, Bethpage, Aircraft Systems
William F. Dwyer, Calverton, Aircraft Systems
Albin J. Ettlinger, Bethpage, Aircraft Systems
Ronald H. Fagan, Calverton, Aircraft Systems
Matthew J. Ferguson, Bethpage, Aircraft Systems
Eugene A. Finck, Bethpage, Aircraft Systems
Raymond C. Finger Jr., Great River, Electronics Systems
Leo J. Fink, Bethpage, Aircraft Systems
Douglas A. Frasier, Bethpage, Aircraft Systems
Kenneth Frederick, Bethpage, Aircraft Systems
William F. Gargiulo, Bethpage, Corporate Services
Vivian M. Geer, Bethpage, Corporate Services
Joseph J. Gillin, Calverton, Aircraft Systems
James Gillis, Melville, Aerostructures
John F. Glaser Jr., Bethpage, Aircraft Systems
Robert J. Gundersen, Bethpage, Aircraft Systems
Robert Hagen, Bethpage, Aircraft Systems
Mary M. Hansen, Bethpage, Aircraft Systems
Alfred E. Harris III, Calverton, Aircraft Systems
Kathleen A. Hauss, Bethpage, Aircraft Systems
James N. Heasley, Bethpage, Aircraft Systems
Carl J. Hoelzl, Melville, Aircraft Systems
John T. Horan, Bethpage, Aircraft Systems
John J. Hulse, Bethpage, Aircraft Systems
Charles J. Jacob, Bethpage, Corporate Services
Malcolm A. Jardine, Bethpage, Aircraft Systems
Willie M. Johnson, Great River, Electronics Systems
Harry C. Kantianis, Bethpage, Corporate Services
William M. Kelly, Melville, Aerostructures
Jerome Kirsch, Woodbury, Electronics Systems
Joseph W. Kucera Jr., Bethpage, Aircraft Systems
Joseph L. LeBlanc, Calverton, Aircraft Systems
Chen Hsi Lee, Bethpage, Aircraft Systems
Michael Lenzo, Titusville, Technical Services
Edward A. Leonard, Calverton, Aircraft Systems
Emilio S. Leto, Melville, Aircraft Systems
Richard K. Lewis, Bethpage, Aircraft Systems
Rose LoCicero, Bethpage, Aircraft Systems
Eugene A. Mack, Calverton, Aircraft Systems
Frank F. Magri, Melville, Electronics Systems
Michael J. Malison Jr., Bethpage, Aircraft Systems
Edward G. Malone, Bethpage, Aircraft Systems
Michael W. Mangino, Melville, Aircraft Systems
Stephen J. McGullam, Pt. Mugu, Aircraft Systems
Richard D. Metz, San Diego, Technical Services
Eugene Morton, Calverton, Aircraft Systems

(Continued on page 10)

K. A. Hauss

J. N. Heasley

J. T. Horan

J. J. Hulse

C. J. Jacob

M. A. Jardine

W. M. Johnson

H. C. Kantianis

W. M. Kelly

J. Kirsch

J. W. Kucera Jr.

J. L. LeBlanc

C. Lee

M. Lenzo

E. A. Leonard

E. S. Leto

R. K. Lewis

E. A. Mack

F. F. Magri

M. J. Malison Jr.

E. G. Malone

M. W. Mangino

S. J. McGullam

R. D. Metz

E. G. Morton

L. T. O'Brien

E. O. Ohman

W. T. Pallack

H. J. Perangelo

L. W. Puccio

R. J. Ragusa

J. A. Rego

D. K. Reichel

H. Rella

R. W. Reutzel

F. W. Riegert

C. M. Robinson

H. C. Rosenburg

E. Ruppel

J. S. Ryan

T. W. Rydzewski

G. H. Sandler

W. J. Schneider

R. R. Schwender

J. V. Scotto

A. F. Scotto

W. Seda

J. E. Silvia

Wood Wins Trip To NASA

When Lamar Wood, senior honeycomb assembler, worked on the space shuttle wings at Grumman's Milledgeville Operations, he thought he was just doing his job. NASA thought a little differently.

Rockwell International, the prime contractor for the Space Shuttle, recommended to NASA that Wood receive the Launch Honoree Award for his outstanding work. NASA agreed.

"By his diligent efforts, he prefitted honeycomb detail with such accuracy that second and third mylar runs were not required," said Rockwell in its recommendation. "The job was near perfect the first time, ultimately reducing cost and time."

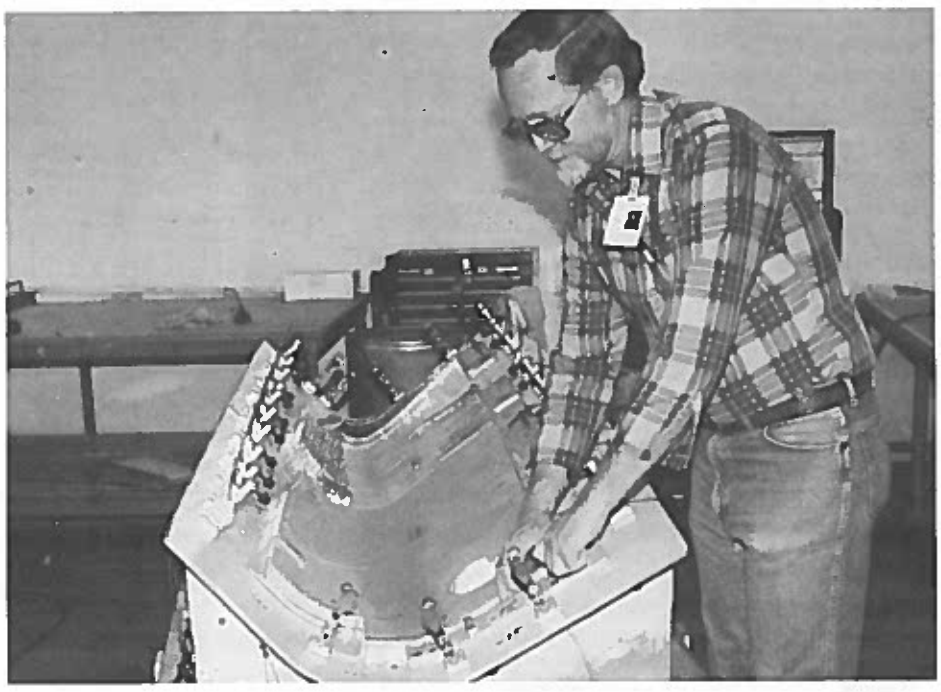
Wood was responsible for cutting honeycomb core to fit between the aluminum parts that form the Shuttle wings. When he was sure the pieces fit together perfectly, he sent it for a mylar run. This is where the part is checked for gaps or inconsistencies in the fit before it is bonded together.

Wood was invited with a guest on an all-expense paid trip to Houston, Texas, on April 11, to attend the Manned Flight Awareness Honoree event. The three-day program was hosted by the Johnson Space Center and included participants from NASA, astronauts and other contractors.

"I felt like a celebrity," says Wood, who came to Grumman five years ago after working in the textile business for 28 years. "I can't tell you how proud I was to be representing Grumman." Events included an orientation dinner, a tour of the Houston area as well as the Johnson Space Center, a dinner cruise, and a special reception in honor of the award winners.

"This is such a great honor for me and I am very proud, but I was just out there doing my job," says Wood. "I really don't feel I did anything special.

"I take pride in everything I do," says Wood, who now works on the F-14 landing gear doors. "But knowing how important the space program is to Grumman gave me an even better feeling about being part of it."■



Pride In Workmanship Pays Off. *Lamar Wood, senior honeycomb assembler at Grumman's Milledgeville Operations, says he takes just as much pride in working on the F-14 landing gear doors as he did on the space program. For his outstanding work on the shuttle wings, Wood was recently presented with the Launch Honoree Award at the Manned Flight Awareness Honoree event, hosted by the Johnson Space Center in Houston, Texas.*

W. L. Simpson

H. Smith

M. Solenick

R. A. Sottung

M. E. Spencer

P. C. Stein

B. B. Terwilliger

V. F. Thomas

J. G. Wahl Jr.

R. O. Wallner

J. Weiss

F. E. White Jr.

J. A. Wimbish

S. A. Winnicki

J. C. Wittenberg

G. T. Woodruff

W. H. Wright

C. L. Young

D. G. Zager

Service Milestones

(Continued from page 9)

John E. Nau, Melville, Electronics Systems
Lawrence T. O'Brien, Coronado, Aircraft Systems
Eric O. Ohman, Bethpage, Aircraft Systems
William T. Pallack, Bethpage, Data Systems
Henry J. Perangelo, Calverton, Data Systems
Louis W. Puccio, Calverton, Aircraft Systems
Robert J. Ragusa, Bethpage, Aircraft Systems
John A. Rego, Melville, Aerostructures
David K. Reichel, Bethpage, Aircraft Systems
Joseph Reichman, Bethpage, Aircraft Systems
Hugo Rella, Bethpage, Aircraft Systems
Richard W. Reutzel, Woodbury, Data Systems
Donald B. Richroath, Bethpage, Space Systems
Frank W. Riegert, Bethpage, Aircraft Systems
Kenneth A. Riley, Los Angeles, Aircraft Systems
Clarence M. Robinson, Great River, Electronics Systems
Hilda C. Rosenburg, Woodbury, Data Systems
Edward Ruppel, Benton Park, Electronics Systems
John S. Ryan, Calverton, Aircraft Systems
Thadeus W. Rydzewski, Great River, Electronics Systems
Gerald H. Sandler, Woodbury, Data Systems
Royal Scheiman, Bethpage, Corporate Services
James D. Schnaderbeck, Bethpage, Aircraft Systems
William J. Schneider, Bethpage, Aircraft Systems
Robert R. Schwender, Great River, Electronics Systems
Joseph V. Scotto, Bethpage, Aircraft Systems
Anna F. Scotto, Bethpage, Corporate Services
William Seda, Bethpage, Aircraft Systems
James E. Silvia, Bethpage, Aircraft Systems
William L. Simpson, Bethpage, Aircraft Systems
Henry Smith, Hicksville, Corporate Services
Michael Solenick, Bethpage, Aircraft Systems
Ronald A. Sottung, Bethpage, Aircraft Systems
Michael E. Spencer, Calverton, Aircraft Systems
Paul C. Stein, Calverton, Aircraft Systems
Byron B. Terwilliger, Calverton, Aircraft Systems
Vincent F. Thomas, Bethpage, Aircraft Systems
James S. VanNostrand Jr., Milledgeville, Aircraft Systems
Joseph G. Wahl Jr., Bethpage, Aircraft Systems
Richard O. Wallner, Calverton, Aircraft Systems
Joseph Weiss, Melville, Aircraft Systems
Forrest E. White Jr., Bethpage, Aircraft Systems
John A. Wimbish, Bethpage, Aircraft Systems
Stanley A. Winnicki, Bethpage, Aircraft Systems
Josef C. Wittenberg, Melville, Aircraft Systems
Gordon T. Woodruff, Bethpage, Space Systems
William H. Wright Jr., Bohemia, Electronics Systems
Raymond J. Yarsinske, Bethpage, Aircraft Systems
Charles L. Young, Bethpage, Corporate Services
Donald G. Zager, Bethpage, Aircraft Systems

Travel Change

Effective April 1, all Long Island facilities are using only Austin Travel to handle their business travel needs. This includes those previously assigned to American Express Travel Service — specifically, Building 25 in Bethpage, Buildings 43 and 44 in Great River, and Melville Buildings 9, 40, 106, 107, 110, 112, 121, and 123.

Orientation sessions will be scheduled for those secretaries and travelers who might not be familiar with Austin's travel procedures. For more information, contact Josephine Brune, Travel Operations, 575-2727.■

Time To Serve. *From soccer teams to civic organizations, many Grummanites volunteer their time and energy. Grummanite Roger Stiles (L) is the president of his local chapter of the Air Force Association in Sacramento, California. It is the largest chapter in that state and the sixth largest in the world. Over 700 people attended the chapter's recent luncheon to hear Brig. Gen. Chuck Yeager (USAF, retired), at right, speak. Stiles is manager of program development at Grumman's Corporate Development Office in Sacramento.*

Where There's Smoke There's Art For This Grummanite

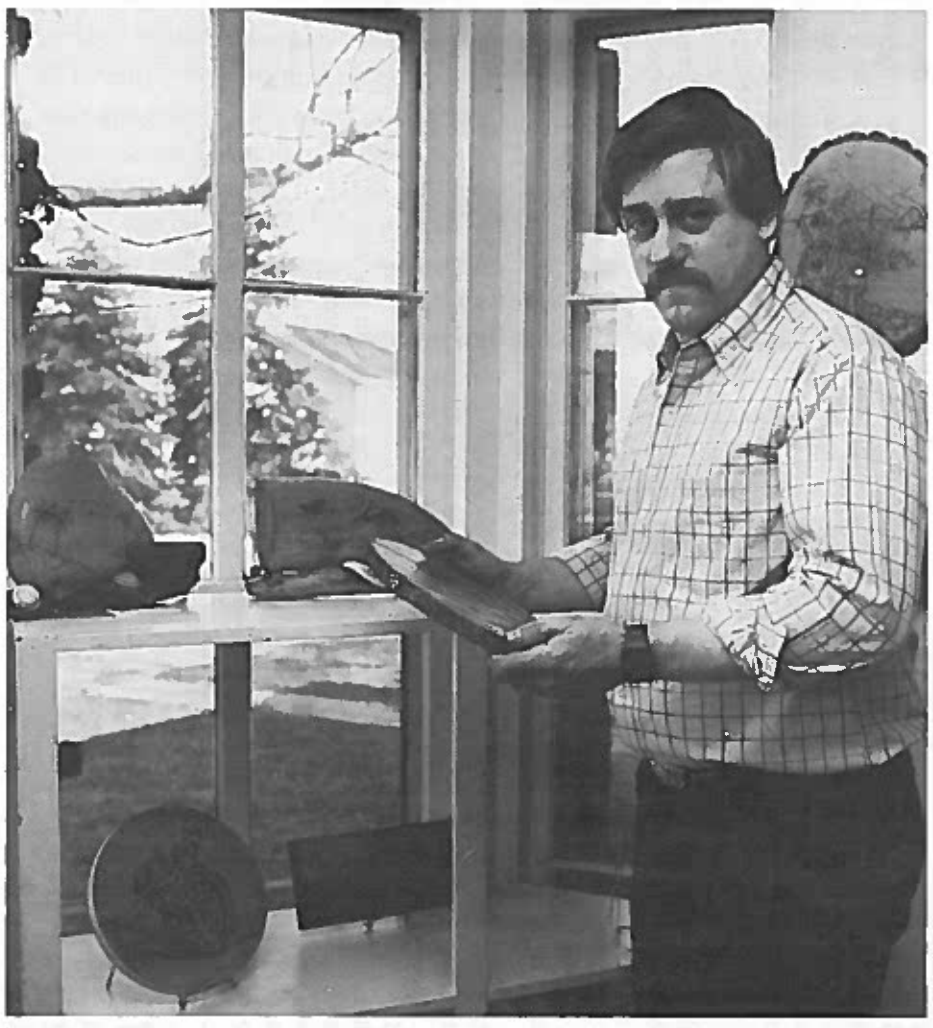
Grummanite Bill Meyer was one of five artists featured at Long Island's East End Art Council show this month. His specialty is wood burning: the drawing of pictures on wood by burning the wood with a soldering iron-like tool.

Meyer is a sheet metal prototype mechanic for Flight Development in Calverton. But he devotes 30 to 35 hours a week of his free time to his art, which sometimes involves carving the wood as well as burning the designs into it.

His artwork has been in demand, often by Grummanites.

"I've been at it now for 11 years, and I've been very serious about it for the last five," Meyer says. He particularly likes nautical subjects. He often creates what he calls "woodshaw," a variation of scrimshaw.

The East End show ran through April 15. Meyer had about 50 pieces on display.■



Showing His Stuff. *Grummanite Bill Meyer was one of five Long Island artists asked to display his work at a recent East End Art Council show. His specialty is wood burning. (Photo by Karl Thoma)*

Bath Time. *In Building 3 in Bethpage, Mario Franceschi attaches electric wires to these F-14 parts in order to put them through the anodizing process. An electric current positively charges the parts while they are in a bath of sulfuric acid. This gives the parts a protective coating of aluminum oxide. (Photo by Bob Settles)*

Readership Survey

We don't want to do all the talking. We'd like to know what you think about the things you see in these pages. Your comments, suggestions and complaints are welcomed. Please take a few minutes and give us your opinions.

Article	Great	Good	Poor	Didn't Read
Annual Meeting (P. 1)	☐	☐	☐	☐
F-14A(PLUS) (P. 3)	☐	☐	☐	☐
ATACC (P. 3)	☐	☐	☐	☐
Paper Conservation (P. 4)	☐	☐	☐	☐
Alexandrovich Interview (P. 5)	☐	☐	☐	☐
PAC Meeting (P. 6)	☐	☐	☐	☐
Project Sterling (P. 7)	☐	☐	☐	☐
Chairman's Letter (Back Cover)	☐	☐	☐	☐

Suggestions For Future Articles:.....

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Comments About This Issue:.....

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Name.....

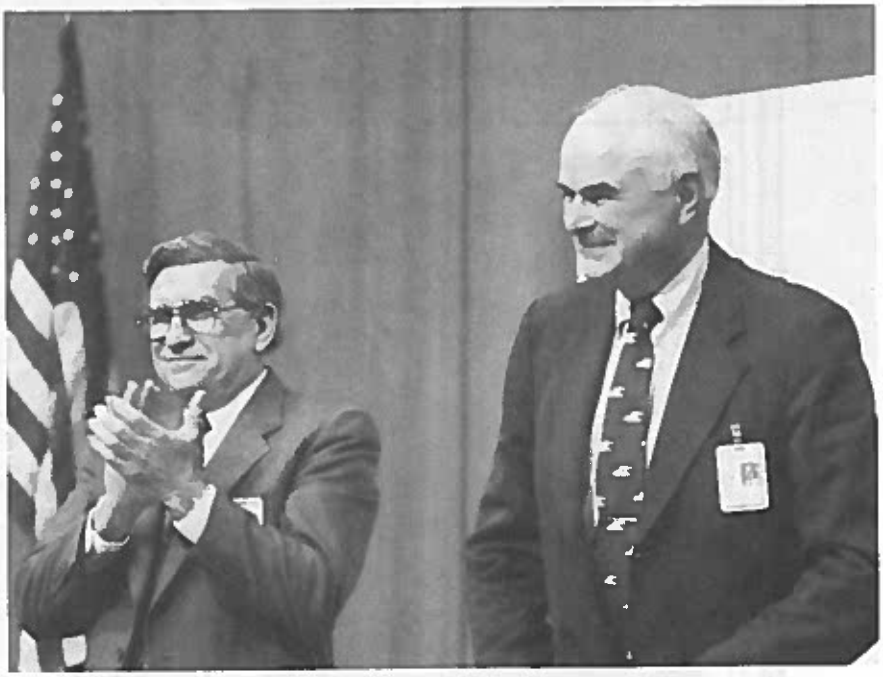
(Required If You Wish A Reply) **Ext.**.....

☐ Retiree **Division**.....

Mail to: Grumman World, A22-GHQ
IIII Stewart Ave., Bethpage, N.Y. II7I4

GrummanWorld

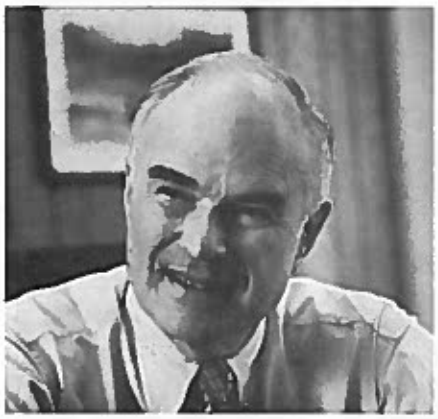
April 29, 1988



Holding A Share In Grumman's Future

Coverage of the 1988 Annual Shareholders' Meeting begins on page 1.

A Letter From The Chairman



In this series of letters about our divisions, I've talked about how the divisions are interrelated and interdependent. Each contributes in its own way to the overall strength and stability of our company, and to the health of its sister divisions. This interrelationship is perhaps most evident, and is so much a daily matter, in Grumman Data Systems. Each day Grumman's overall corporate effectiveness is affected by our success in perfecting the customer-consumer-partner relationship between the other divisions and Data Systems.

Data Systems provides critical services to internal Grumman users, providing the computer know-how to make our company work. The division is a result of the computer age arriving at Grumman. We needed substantial data processing capacity if we were to be involved in the Apollo program back in the '60s. We invested in it, we developed it, and it changed just about everything we do.

Today, slightly more than 60 percent of Data Systems' work is for Grumman. It handles telecommunications for the entire company, and it manages and plans all of our computer resources. Data Systems, working with the other divisions, has come up with custom solutions for managing all kinds of information — everything from getting our paychecks out on time and keeping track of each Grummanite's benefits, to processing real-time flight test data at our automated telemetry station at Calverton.

Every week, Data Systems processes and delivers 30,000 jobs, and, in doing so, creates two million feet of computer-generated output. It manages and plans our computer resources: over 9,500 terminals and workstations, 2,500 personal computers, 300 mini-systems and 33 large-scale computers. Most of our engineers do their design work on computer terminals; robotics and computer-aided manufacturing have been in our shops for quite a while.

Data Systems was separated out as a business early in its history, so that it could do the things for outside customers that it does so well for Grumman. There were some false starts as we tried various avenues. It was fortunate that we turned away early from the "public utility" approach, where customers could buy time on our computers. The proliferation of computers in the early '70s made this an increasingly competitive — and less profitable — business for everyone.

Today there are a number of successful enterprises within Data Systems: third-party computer maintenance, InfoConversion, the Data Systems Institute. But, above all, there is a steadily increasing level of high-tech capability that typifies the character of the division. Because of this capability, Data Systems has gone after — and won — some of the most demanding contracts to come out of the federal government. The Engineering Analysis and Data System at NASA Marshall Space Flight Center is one example. This supercomputer-based system serves Marshall's 2,200 engineers and scientists. Grumman designed, developed and installed and supports it, and recently won a $10 million additional contract to upgrade it.

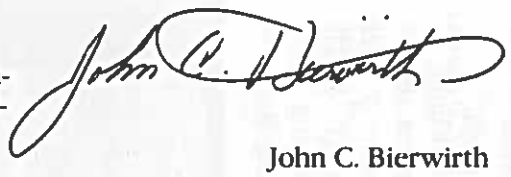
Another important project is the information processing system for the Army's Strategic Defense Command at Huntsville, Alabama. Grumman has now designed and developed about 20 systems of this type.

Earlier this year, Data Systems won an $84 million Air Force contract for DMMIS—depot maintenance management information system. Grumman will provide one system for coordinating all the aircraft maintenance activities at several Air Force logistics centers — instead of the 33 systems the Air Force now uses. This contract is expected to span 12 years and grow in value as technology upgrades are approved.

Most of our divisions are used to competitions with two or three other companies. To win the DMMIS contract, Data Systems went head-to-head with five of the most competent computer and data processing companies in the world. This is the pattern for so many of its efforts: it has more competition than any other division seems to face, but it is proving to be up to the challenge.

Data Systems has been instrumental in securing work for other parts of the company as well. Our work with Lockheed on the Shuttle Processing contract has been enormously successful and our data processing expertise has been an important factor. That expertise is one of the reasons we won the Space Station Program Support contract. Data Systems has a hand in the Joint STARS program as well, and is the software manager on the Boost Surveillance and Tracking System program.

For bringing in profitable new work, for backing up its sister divisions, and for keeping the company running smoothly and efficiently, the Data Systems Division is vital to the success of the entire corporation — and the support between each of the divisions is vital to Data Systems' success.



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